

2.4.14 Laboratory : Marine Environmental Microbiology

Member:	Professor	Shigeki, Sawayama, D. Agric. Sci.
	Assistant Professor	Tetsuro Ajisaka, D. Agric. Sci.
	Doctor's program	2
	Master's Program	7
	Undergraduate	2
	Post-Doctoral fellow	1

A. Research Activities (2009.4-2010.3)

A-1. Main Subjects

a) Study on microbial biofuel production from biomass

Fungal genome information was studied to improve cellulase production efficiency. Analyses of xylose metabolism in yeast for ethanol fermentation was started to do further genetic transformation.

b) Study on harmful algae

Growth factors for a dinoflagellate causing paralytic shellfish poison was studied in Osaka bay. Distribution of a attached dinoflagellate causing ciguatera poison in Japan was surveyed. Phylogenetic analyses of algicidal bacteria were conducted focusing on different habitats.

c) Taxonomical and ecological study of Sargassum (marine algae)

Variable populations of Sargassum plants from East Asia area (Japan, China and Korea) are studying from DNA analysis (co-operation with other scientists) and taxonomical/statistical analysis. Main target plants are Sargassum patens, S. piluliferum, S. horneri and S. filicinum, which are very common in the coasts. Especially, S. horneri/filicinmu species group are rafted in East China Sea, so we studied their origin and function in the marine ecosystem.

d) Multilateral studies of freshwater algae in the Mekong

Freshwater algae (Chlorophyta, Rhodophyta and Cyanophyta) have been used for food in the vicinity of the Mekong, Southeastern Asia. Multilateral studies on these algae were studying in Laos and China.

A-2.Publications and presentations

a) Publications

Books

- Ajisaka, T. : 1.3.4. The Use of Cladophora in Northern Laos, in T. Akimichi (ed.) "An Illustrated Eco-History of the Mekong Basin", pp. 43-46. Total 179pp., White Lotus Press, Bangkok, Thailand, 2009

Original Papers

- Uwai, S., Kogame, K., Yoshida, G., Kawai, H. and Ajisaka, T. : Geographical genetic structure and phylogeography of the Sargassum horneri/filicinum complex in Japan, based on the mitochondrial cox3 haplotype, Marine Biology, 156: 901-911, 2009

Reviews

- Komatsu, T., Mikami, A., Ajisaka, T., Uwai, S., Aoki, M., Tanaka, K. Fukuda, M., Kokubu, Y., Tanaka, K., Michida, Y. and Sugimoto, T.: Ecological characteristics of drifting seaweed rafts composed of Sargassum species, Bull. Coast., Oceanog. 46: 127-136, 2009 (in Japanese)
- Ajisaka, T.: Food culture in the Mekong- Kaipane- (dried Nori sheet from Cladophora), Seaweed Resources NO. 21: 30-39 (2009) (in Japanese)

Reports

- Ajisaka, T.: Food culture in the Mekong as dried Nori sheet from Cladophora, Nori-Times, 2010.Jan.11+Feb. 1, 2010 (in Japanese)

b) Conference and seminar papers presented

- Japan Society for Bioscience, Biotechnology, and Agrochemistry (2)
- The Japanese Society of Phycology (3)
- The Japanese Society of Oceanography(1)
- Autumn Symposium of the Seaweed Resources(1)
- Symposium of ORT (2)

A-3.Off-campus activities

Membership in academic societies

- Sawayama, Shigeki : The Japanese Society of Fisheries Science (2010 autumn conference committee member)

Research grants

2.Other Research Grants

- Research Aid from the NPO Foundation Institute for Fermentation, Osaka : Collaborator:
Ajisaka : “Studies on water quality and purification in Lake Biwa: Understanding the roles
of reed communities and microorganisms in the reed surface

A-4.International cooperation and overseas activities

Visiting Research Scholars

- Research fellow 1 (China)

B.Educational Activities(2009.4-2010.3)

B-1.On-campus teaching

a) Courses given

- Undergraduate level : Seminar in Marine Microbiology (Sawayama and Ajisaka, partaker), Laboratory Course in Bio-resource Science (Ajisaka, partaker), Marine Practice I (Ajisaka, partaker), Marine Practice III (Fac. Science) (Ajisaka, partaker), Water World Biology(Open seminar) (Ajisaka, partaker)
- Graduate level : Seminar in Marine Environmental Microbiology (Sawayama and Ajisaka), Laboratory Course of Marine Environmental Microbiology (Sawayama and Ajisaka)

B-2.Off-campus teaching etc.

Part-time lecturer

- Shigeki Sawayama: Hiroshima University, Faculty of Engineering (Technology for Biofuels)
- Tetsuro Ajisaka: NaraWomen's University, Faculty of Science (Marine Practice)

B-3.Overseas teaching

International students

- International students : Doctral 1 (Korea)

C.Other Remarks

- Shigeki Sawayama : Advisory committee for NEDO bioethanol production technology in Ehime prefecture (committee member), Advisory committee for NEDO biogas production technology in shopping center (committee member)